Loudoun County
VIRGINIA
WHERE TRADITION MEETS INNOVATION

Methods to Streamline the Signal Development Process

Board of Supervisors 2021 Transportation Summit

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Traffic Signal Development Background

- Traffic Signals Developed by the County are Ultimately Operated And Maintained By VDOT
  - Signal Designs Must Follow VDOT Standards
  - Signals Must Be Approved And Permitted By VDOT

- Previously, DTCI Followed The Traditional Development Process Used By VDOT

- Now, DTCI In Cooperation With VDOT Is Using A Modified Process

Prerequisites to Signal Develop

- The Signal Must Be Warranted
  - Signal Warrant Criteria Outlined in Part 4 of the Manual for Uniform Traffic Control Devices (MUTCD)
  - Warrant Criteria Takes into Consideration:
    - Traffic Conditions
    - Pedestrian Characteristics
    - Historic Crashes
    - Physical Characteristics of the Location
  - Satisfying A Warrant In Itself Does Not Ensure a Signal Can Be Installed

Prerequisites to Signal Develop (continued)

- VDOT Requires Signals To Be Justified In A Signal Justification Report (SJR)

- Instructional and Informational Memorandum (IIM) for Signal Justification Reports for New and Reconstructed Signals, IIM-TE-387.1, Outlines The Process

Prerequisites to Signal Develop (continued)

- VDOT Now Views Traffic Signals In The Broader Context Of Overall Transportation Corridor Operations and Safety

- IIM-TE-387.1 States:
  - "Traditional Traffic Signals Are Not A 'Cure-All' For Operational And Safety Issues"
  - "Traditional Traffic Signals Typically Have More Crash Risk Than Innovative Intersection Configurations"

Prerequisites to Signal Develop (continued)

- The SJR Needs To Demonstrate That A Signal Is The Best Alternative Compared To Other Non-Signal Alternatives

- Development Of A Traffic Signal Can Only Begin After A Signal Warrant Is Met And VDOT Approves An SJR That Justifies The Signal

Traditional Signal Process

- Process Based On Installation Contractor Procuring Poles And Mast Arms (After Signal Design Completed)

- Under Traditional Process, The Installation Contractor:
  - Performs Soil Testing
  - Designs Signal Pole Foundations
  - Designs And Specifies Pole and Mast Arms
  - Procures Poles And Mast Arms After Completing Above Tasks (16-20 Week Fabrication Timeline)

Modified Process Initiated By DTCI

- Process Based On Poles And Mast Arms Being Procured Prior To Construction

- Under This Process, The Signal Designer:
  - Performs Soil Testing
  - Selects Standard Signal Pole Foundations
  - Selects Standard VDOT Poles and Mast Arms

- Standard Poles And Mast Arms Waiting In Storage When Construction Begins

Time Saved By Modified Process

- Compared To The Traditional Process, The Following Tasks Are Removed From The Construction Phase And Their Associated Durations:
  - Soil Testing (2-4 Weeks)
  - Foundation, Pole, And Mast Arm Design (6-8 Weeks)
  - Pole And Mast Arm Fabrication (16-20 Weeks)

- Some Activities Performed Concurrently in Traditional Process Still Required

Status of Modified Process Elements

- Implemented Elements
  - Perform Soil Testing During Design
  - Designs Using VDOT Standard Poles And Mast Arms

- Elements Undergoing Implementation
  - Geotechnical Consultant Developing Standard Foundation Designs
  - Request For Proposal Advertised For County To Procure Poles And Mast Arms

Questions?